

REMARKS

This is in response to the Office Action mailed December 13, 2004 in which the Examiner finally rejected claims 1-23. Reconsideration of the application is respectfully requested.

CLAIM REJECTIONS - 35 U.S.C. §103

In Section 3 of the Office Action, the Examiner rejected claim 1 under 35 U.S.C. §103(a) as being unpatentable over Oswald et al. (U.S. Patent No. 5,457,990) in view of Burger et al. (U.S. Patent No. 5,969,666). Applicant respectfully disagrees with the Examiner's assessment of the cited references.

Applicant disagrees with the Examiner's finding that column 9, lines 31-53 and column 10, lines 49-53 of Oswald et al. teach the calculating step described in claim 1. The cited sections of Oswald et al. describe the circuitry of positive and negative peak voltage trackers 90 and 92 whose functions are to "hold the maximum and minimum values of the [reflected] waveform using capacitors c48 and c49 respectively" and to "define positive and negative threshold levels, each being a predetermined fraction of the respective peak value." Accordingly, the cited disclosure merely indicates the ability of the system of Oswald et al. to set threshold values and is unrelated to the process by which the particular threshold values used by the system are chosen.

As discussed in the background of the present application, threshold values of prior art level detectors, such as that of Oswald et al., are conventionally set through empirical methods rather than by using the calculating step of claim 1. Therefore, it is not inherent in the disclosure of Oswald et al. that the setting of the threshold values defined by the variable resistors 90 and 92 involve the calculating step of claim 1, as the Examiner contends. In particular, the cited disclosure still fails to teach a step of "calculating an estimated first reflected pulse

amplitude as a function of a reference amplitude of the transmitted microwave pulse", as described in claim 1. Accordingly, Applicant submits that Oswald et al. fails to disclose the calculating step of claim 1.

Additionally, Applicant disagrees with the Examiner's finding that it would have been obvious to one skilled in the art to modify Oswald et al. to include the microwave pulse as taught by Burger et al. since there is no motivation as suggested to combine the references. The Federal Circuit has stated, "virtually all [inventions] are combinations of old elements." Environmental Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983). The Federal Circuit has also found that rejecting patents solely by finding prior art corollaries for the claimed elements would permit an Examiner to use a claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention, which would be "an illogical and inappropriate process by which to determine patentability." Sensonics, Inc. v. Aerosonic Corp., 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996). Accordingly, even seemingly simple changes require a finding of a suggestion in the prior art to make the modification to avoid the improper use of hindsight. In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

Applicant disagrees with the Examiner's conclusion that a motivation to combine the cited references exists based upon on a finding that "Burger suggests that microwave pulses would be advantageous in allowing the determination of the pulse propagation time thereby allowing easier time calculations (column 3, lines 19-31)." In particular, the cited disclosure of Burger et al. fails to make any comparison between the use of a submerged transmission line and the use of a microwave pulse to locate material interfaces, or provide a basis for a finding that

one would be "easier" than the other. Additionally, not only do the cited references fail to suggest the interchangeability between the submerged transmission line method of Oswald et al. and the microwave pulse method of Burger et al., neither reference makes any mention of the method used by the other. Applicant submits that such a suggestion or motivation must be provided in order to combine the references.

Accordingly, Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness against claim 1, since the cited references fail to disclose all the elements of the claim and there is no suggestion or motivation to combine them. Therefore, Applicant requests that the rejection of claim 1 be withdrawn. Additionally, Applicant submits that claims 1-9, 21 and 22 are allowable as being dependent from allowable base claim 1.

In Section 4 of the Office Action, the Examiner rejected claims 10, 11, 16, 17 and 19-21 under 35 U.S.C. §103(a) as being unpatentable over Oswald et al. in view of Burger et al. and further in view of De Carolis (U.S. patent No. 3,812,422). Applicant respectfully disagrees with the Examiner's assessment of the cited references.

The cited sections of De Carolis fail to provide any disclosure of a step of "calculating a first pulse amplitude as a function of the reference amplitude, and the first and second dielectric parameters", as described in independent claim 10. Rather than relating to a method for automatically setting the threshold values of a microwave level transmitter, such as that described in independent claim 10, the cited sections of De Carolis merely describe formulae that "can be applied for determining the value of the dielectric constant of a liquid, the level of a liquid stationary in a vessel or moving through a duct, the levels of the interfaces between two or more liquids or gases

having different dielectric constants; specifically for determining the thickness of an emulsion layer overlaying a liquid mass." [column 2, lines 20-27] Accordingly, even if one assumes that the Examiner's assessment of Oswald et al. and Burger et al. is correct, there is no motivation or suggestion to use the formulae of De Carolis for the purpose of automatically setting threshold values as provided in independent claim 10. Accordingly, Applicant submits that independent claim 10 is non-obvious in view of the cited references, and requests that the rejection be withdrawn.

With regard to claim 17, although the Examiner indicates that De Carolis includes a radar level transmitter having the "dielectric constant calculator" of claim 17, the Examiner fails to identify where such a radar level transmitter is disclosed. Likewise, the Examiner fails to identify where the cited references disclose the claimed transceiver, microprocessor system, and level calculation module, as described in claim 17. Accordingly, Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness against claim 17, and requests that the rejection be withdrawn.

With regard to claim 19, the Examiner fails to identify where the cited references disclose a radar level transmitter including "an input/output port adapted to transmit a level output that is indicative of the first material interface" as described therein. Accordingly, Applicant requests that the rejection be withdrawn.

In Section 5 of the Office Action, the Examiner rejected claims 2, 4-9, 12, 13, 18, 22 and 23 under 35 U.S.C. §103(a) as being unpatentable over Oswald et al. in view of Burger et al. and De Carolis, and further in view of McEwan (U.S. Patent No. 5,609,059). Applicant respectfully disagrees with the Examiner's assessment of the cited references.

In making the rejections, the Examiner cites several sections

of McEwan that discuss the level detecting capabilities of its system based on threshold values. However, none of the cited sections address the subject matter of the present invention that relates to the setting of threshold values. For example, the finding by the Examiner that McEwan teaches "that the fiducial interface is formed between the antenna and the first material" at column 6, lines 43-49 is immaterial to a step of "calculating an estimated fiducial pulse amplitude as a function of the reference amplitude, the correction factor, and the first dielectric parameter", as described in claim 7.

Additionally, McEwan fails to disclose a step of "calculating an estimated second reflected pulse amplitude as a function of the reference amplitude, the correction factor, the first dielectric parameter, the second dielectric parameter, and a third dielectric parameter having a value corresponding to a dielectric of a third material located below the second material", as described in claim 4.

McEwan also fails to disclose the calculating of the estimated second reflected pulse amplitude "as a function of at least one of an attenuation factor and a range factor", as described in claim 6.

Additionally, McEwan fails to disclose "setting a second threshold value as a function of the second pulse amplitude" as described in claim 12, "calculating the estimated first reflected pulse amplitude as a further function of a correction factor" as described in claim 22, or "setting a correction factor, wherein the first pulse amplitude is calculated as a function of the correction factor" as described in claim 23.

Accordingly, Applicant submits that the rejected claims are non-obvious in view of the cited references and requests that the rejections be withdrawn.

In Section 6 of the Office Action, the Examiner rejected

claim 3 under 35 U.S.C. §103(a) as being unpatentable over Oswald et al. in view of Burger et al., and further in view of McEwan. Applicant respectfully disagrees with the Examiner's assessment of the cited references.

The Examiner appears to have found McEwan to disclose the calculating step of claim 3 at column 6, lines 49-53. However, the cited section only discusses that the launcher plate 18 is a better reference than the transceiver 12, from which the fiducial and reflected pulses are measured. Nowhere in the cited section of McEwan is there any suggestion of "calculating an estimated first pulse amplitude as a function of a reference amplitude of the transmitted microwave pulse" and "as a function of at least one of an attenuation factor and a range factor", as described in claim 3. Accordingly, Applicant submits that claim 3 is non-obvious in view of the cited references, and requests that the rejection be withdrawn.

In Section 7 of the Office Action, the Examiner rejected claim 14 under 35 U.S.C. §103(a) as being unpatentable over Oswald et al. in view of Burger et al. and De Carolis, and further in view of Mowrey et al. (U.S. Patent No. 5,500,649). Applicant respectfully disagrees with the Examiner's assessment of the cited references.

As with the other cited references, Mowrey et al. is unrelated to a method for automatically setting threshold values for use by a microwave level transmitter to detect reflected pulses corresponding to portions of a transmitted microwave pulse. Instead, Mowrey et al. is directed to an apparatus for monitoring the position of a mining machine. Applicant disagrees with the Examiner's finding that column 7, line 65 to column 8, line 10 to disclose the method of claim 14. Rather, the cited section merely discloses that the operator "based on previous experience" may adjust the radar for a good return reflection and, when the

"signal appears acceptable" problems may be the result of an improperly set threshold. Accordingly, the cited section of Mowrey et al. fails to disclose the method of claim 14 that includes a step of setting the first threshold value as "a function . . . of an offset value". Therefore, Applicant submits that claim 14 is non-obvious in view of the cited references, and requests that the rejection be withdrawn.

In Section 8 of the Office Action, the Examiner rejected claim 15 under 35 U.S.C. §103(a) as being unpatentable over Oswald et al. in view of Burger et al., De Carolis, and McEwan and further in view of Mowrey et al. As discussed above, Mowrey et al. fails to disclose the setting of the first or second threshold values as a function of an offset value. Therefore, Applicant submits that claim 15 is non-obvious in view of the cited references, and requests that the rejection be withdrawn.

CONCLUSION

Should the Examiner disagree with Applicant on any of the above, Applicant requests that the Examiner more specifically identify where each element of the claims is disclosed by the cited references. Presently, many of the generalized statements and citations provided by the Examiner are not tied to any specific claim or element thereof. As a result, the burden is improperly placed on Applicant to analyze and apply the Examiner's argument to the claims of the present application to determine the basis for the claim rejections.

In view of the above comments and remarks, Applicant submits that the present application is in condition for allowance. Reconsideration and favorable action is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: 

Judson K. Champlin, Reg. No. 34,797
Suite 1600 - International Centre
900 Second Avenue South
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 339-3312

JKC/djb